



zx mushroom club

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MARCH/APRIL 1989

ATTENTION...

WE ARE MOVING CLOSER TO YOU!

As from 30 April 1989 we will be moving from:

13 Third Street
Glenhazel
Sophiatown

TO

146 Seventh Street
Babepo
Sophiatown

Private Bag 1104
Glenhazel
Sophiatown

P.O. Box 880
Trenton 0401
Sophiatown

Tel- 0468-30774

Tel- None as yet

Full details, such as how to get there, will be given as soon as the move has taken place.

New things will really get moving and ordering by mail WILL be EVEN easier!

Information Enterprises will be able to give you first offers, back up, products and prices. Along with that they will be able to give you assembly, packing, order picking, exports and despatch efficiently and promptly. Information Enterprises's policy is to save you time, effort and money - and that they hope to give you with the move.

This month Information Enterprises is introducing a number of new products and hopes that you will take advantage of the special introductory prices, as these will only be valid for the month of April. Outrigger the new products are monitors (new range) printers (latest arrivals in S.A.), disc drives and high performance PCs.

Special owners have not been forgotten - the latest titles are on order and as soon as they arrive in the country you will be notified. This is going to be done in this way, simply because a lot of disappointed feet been caused by the non-arrival of titles which we have ordered. Titles which have been re-ordered include Operatives Wolf, Double Dragon, Robocop, Football Manager 1 and expansion kit, History in the making, Iron Crowned Giants, Supreme Challenge - to name a few.

I am really working on getting you the best price possible for peripherals for you computer as well as for software.

I will keep you posted with all developments!

The only reason why you will start seeing more things in the newsletter for IBM compatible machines is because so many of the club members have upgraded to these and have asked us to get these done for them. So please bear with them!

Amos



FRAGILE



FRAGILE



FOR OUR YOUNG ENTHUSIASTS

THE LANGUAGE OF COMPUTING

Jacqueline Shell

THE LAWS OF THOUGHT

A CENTURY BEFORE THE ELECTRONIC COMPUTER WAS INVENTED
GEORGE BOOLE PUBLISHED HIS IDEAS ON MATHEMATICAL LOGIC

DID YOU KNOW

GEORGE BOOLE 1815-1864

George Boole was born before electronic computers were ever imagined yet he is one of the founders of the mathematical logic used by today's computers. He was the son of a tanner and taught himself mathematics in his spare time. He was convinced that the everyday decisions that people make were based on reason, and that this reason could be refined into mathematical logic. He published his ideas in 1847 and almost overnight became famous and was invited to become the first professor of mathematics at the newly founded University of Cork.

SETS OF INFORMATION

Imagine one night you go to a disco at your school. You want to dance so you look for a partner. Your friends in the hall are EITHER dancing OR NOT dancing - they cannot be doing BOTH. The partner you approach must be either a boy or a girl. Obviously, a person can be male or female but NOT BOTH. Now Boole would have made a different approach. He would have seen a dance floor containing "sets" of people, the male set and the female set, or M and F. Boole would also have seen B and W, or the set of people dancing and the set of people waiting to dance. His partner would have to satisfy two conditions: be a female and also be waiting to dance. Boole noticed the importance of the "and" connecting the two conditions and gave it a symbol - an upside down U. He was then able to list the set of possible dance partners as F \cap W. However, if he did not want to dance but just chatter to a friend, he could choose anyone from M or F because these two sets include everyone in the room. Again he saw the importance of the innocent looking "OR" in the equation and gave it the symbol - U. So in his logical algebra M U F defines all the males and all the females in the room.



The special NAMES found in computers are named after Poole's symbols such as AND and OR. There is a very picturesque interpretation of Boolean logic I invented by the English Mathematicians John Venn (1834-1903) and Charles Babbage (1833-1871), better known as the author Lewis Carroll.

 A SOMETHING FOR YOU TO DO

Let us take a practical problem. Imagine you have stored a list of your acquaintances in the memory of your computer. With each name is listed other information - such as the telephone number, hobbies etc. One afternoon you decide you want to play tennis at a court on the other side of town. You need a friend who is known to an acquaintance who plays tennis and owns a car. Your computer is instructed to print out the name and telephone number of every person who satisfies all three conditions: plays tennis AND owns a car AND is a friend. The program listed below first asks for information about each acquaintance and then finds friends. do they have a car, do they play tennis? It is assumed that you have 3 acquaintances but you can change the number of acquaintances to any you want transferring to change the 3 in the bracket of the DIM statement in line 100. The list is then scanned using an OR..THEN command into which has been inserted a multiple condition. Finally, the name and telephone number of any acquaintance who satisfies the

condition - that they are friend and play tennis and have a car is printed.

```
*****
1 PROGRAM LISTING
2 *****
30 DIM N(15),D(15),T(15),C(15),F(15),D1(15),D2(15),C1(15),C2(15)
40 NEXT I
50 FOR NAME,PHONE,PHONE,FRIEND,
  TENNIS,CAR?
60 PRINT "ENTER DETAILS IN THE
  FORM:"
70 PRINT "NAME,PHONE, YES/NO,YES
  /NO,YES/NO
80 FOR I=1 TO 3
90 INPUT NAME(),D1(I),D2(I),T1(I),
  C1(I)
100 NEXT I
110 REM SEARCH ROUTINE
120 FOR J=1 TO 3
130 IF F(I)=YES AND T(I)=YES
  AND C(I)=YES THEN GO SUB
  140
150 NEXT J
160 STOP
170 PRINT N(1);D1(1);D2(1)
180 RETURN
*****
```

Venn Diagrams



SPEED PLOT by D.WELLY

One of the most useful subroutines that are contained within the SPECTRUM ROM is the PLOT SUBROUTINE found at address 22E5(Hex), and it looks like this :

HEX ADDR	HEX CODE	ASSEMBLER NOTATION	NOTES CONCERNING BASIC
22E5	ED43709C	LD (22E7),8C	
22E9	C8A422	CALL 22AA (Hex)	goes to 2274 (Dec)
22EC	47	LD B,A	
22ED	04	INC B	
22EE	3E9E	LD A,FE (Hex)	LET A register = 254 (Dec)
22F0	0F	RRCA	Rotate A right with carry
22F1	10F0	DJNZ -3	LET B=B-1:IF 1280 THEN GOTO 1270
22F3	47	LD B,A	
22F4	7E	LD A,(HL)	
22F5	FD4E9F	LD C,(22446)	F FLAG, CONCERNING BASIC
22F8	C841	BIT 0,C	
22FA	2001	JR HL,+1	22FB (Hex)
22FC	A0	AND B	
22FD	C851	BIT 2,C	
22FF	2002	JR HL,+2	2300 (Hex)
2301	A8	OR B	
2302	2F	CPL	COMPLEMENT A
2303	77	LD (HL),A	
2304	C8E808	JF 0808 (Hex)	GOTO SUB THAT ALTERS ATTRIBUTES

To use the SPEED PLOT, I will be using a modification of the above SUBROUTINE that shortens it by half, (from 38 bytes to 18 bytes long). This subroutine makes use of a more complicated subroutine at 2274 (Dec) (22AA Hex). This subroutine converts the B and C Registers into a Screen Address in the HL Register. Then, when one enters the first subroutines, we need B = ROW No between 0 and 175, and C = COLUMN No between 0 and 255. So if you called subroutine 22E5 (Hex) with B = 175 and C = 5, PL would be equal to 16384 (Dec).

The following program when called takes an X and Y value out of addresses 40098 and 40099 respectively. From 40100 onwards must be effect values of the initial X and Y values. The X values need not only be positive but can be negative too. The Y values MUST be positive! The subroutine note in the same way as a PLOT OVER 1 statement and can therefore erase whatever it has just drawn if you recall it. The subroutine exits if the Y offset (vertical co-ordinates) is 255. Here it is:-

	ORG 40000	LD A,(HL)	goto ERCA
	LD HL,40040	CP 000	DJNZ goto
	LD B,(HL)	SET I	LD B,A
	INC HL	ADD A,E	LD A,(HL)
	LD E,(HL)	LD B,A	OR B
loop	INC HL	POSH HL	CPL
	LD A,(HL)	CALL #22AA	LD (HL),A
	ADD A,D	LD B,A	POP HL
	LD C,A	INC B	JP loop
	INC HL	LD A,254	

The reason why I use the effect system is because all that's have to be changed to alter the position of the character are the co-ordinates.

If you have more than one type of character to draw, you might need several endings for each different type of character. Then before you call the routine, load HL with the address of the co-ordinates of the character and call 40000.

The next routine at 40040 is a TEST ROUTINE. It checks to see that a character is exactly as it is in memory. This is useful because if two characters were ever on each other, the pixels at the point of overlap are erased. So if a missile hits a wall then the routine would pick it up because there would be a few pixels missing at the tip of the missile

information enterprises

HiSoft C

INTERPRET COMPILER & EDITOR

C is a general purpose programming language that places the emphasis on concise programs and flexible expressions. The user is provided with little protection - it is possible to write elegant, powerful programs but it is also possible to write amazingly obscure bugs - the C which makes it so powerful.

The HI-SOFT implementation of C is a compiler designed with small home computers in mind. It provides a useful tool in a system that has only RAM and a cassette tape available. Other features are also supported.

The compiler is based entirely in BASIC together with an editor, the source text which is being developed, and the resulting machine code. There is no intermediate pass through assembly language or linker's such as is normally found in C compilation systems.

This means that program development can be very rapid indeed.

Direct execution of statements has been provided in this implementation. It takes advantage of the immediate compiler to let the user type in C and execute it straight away, just like BASIC.

NORMAL PRICE 55.00
SPECIAL PRICE 75.00
P&P 2.50

The Colt

COLT is a totally new product which transforms your Spectrum Basic programs into pure Z80 machine code, making them run between 2 and 600 times faster!

COLT is easy to use and is small enough to store them programs to be compiled.

For more details on this wonderful program send a SAE and P&P Postal Order.

NORMAL PRICE 55.00
SPECIAL PRICE 55.00
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FAST BASIC COMPILER

ANY NUMBER OF
HARDWARE
METHODS
A 2.5 100
2.5 100
2.5 100
2.5 100
2.5 100
2.5 100

HiSoft BASIC

A Fast Floating-point Compiler

At least a fast floating-point compiler for your Spectrum.

At long last there is a BASIC compiler for your Spectrum that not only compiles real numbers as well as integers but also does it quickly!

- runs on ALL the spectrum computers
- takes full advantage of the 65816 memory in the newer machines by writing code on the RAM leaving the normal RAM for your programs
- 15 BASIC programs up to 30k in length can be compiled without using tape or hard drive
- speed increased up to 15-20 times that of the built-in BASIC with typical for integer only programs and up to 40 times for programs with a lot of floating point operations
- containing a remarkably tiny with single letter commands to compile, run, display, system error messages etc.
- HI-SOFT BASIC is the fastest, smallest and most compact compiler available for all models of Spectrum

YOU'LL BE AMAZED AT WHAT BASIC CAN NOW DO

NORMAL PRICE 150.00
SPECIAL PRICE 150.00
P&P 2.50

HINTS AND TIPS

If it is if you still want to use your memory via paging (see Handbook) don't use the drive editor for Basic, then type UNB 0 in BASIC Basic, you then go to 40k mode but paging isn't needed! The drive is used with an assembler which won't work in 1024 mode but needs paging.

From: M. Vackarich in Part Elizabeth

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NEW

FLOPPY DISK DRIVES

IBM PC/XT INTERNAL
3 1/2" FLOPPY DISK UPGRADE KIT

NEW PRODUCT
ANNOUNCEMENT

3 1/2" Floppy disc drive kit to replace
existing 5 1/4" floppy disc drives



- IBM PC/XT/AT and lookalikes
- Allows easy transfer of data between existing PCs and new 3 1/2" format machines
- Direct replacement - just remove existing 5 1/4" floppy and fit our kit - full instructions provided
- FOR FURTHER DETAILS PLEASE CONTACT OUR SALES DESK

WINCHESTER DISK UPGRADE KITS FOR IBM PC/XT/AT & COMPATIBLES

FEATURES INCLUDE:

- Specially designed 20Mb fast access Winchester
- Fits into existing floppy port
- Easy to install
- Kit contains all necessary cables, controllers and instructions for fast and simple installation



20Mb UPGRADE

WINCHESTER 20Mb FLOPPY DRIVE

- HALF HEIGHT
- 320K BYTE CAPACITY
- INCLUDES CABLE - LIMITED SPECIAL OFFER
- DOES NOT INCLUDE POWER SUPPLY

P&P 5.00
NORMAL PRICE 299.00
SPECIAL PRICE 249.00

WINCHESTER 20Mb HARD DRIVE

- HALF HEIGHT
- 320K BYTE CAPACITY
- INCLUDES CABLE - LIMITED SPECIAL OFFER
- DOES NOT INCLUDE POWER SUPPLY

P&P 5.00
NORMAL PRICE 349.00
SPECIAL PRICE 299.00

WINCHESTER 20Mb HARD DRIVE

- HALF HEIGHT
- IBM COMPATIBLE
- SUITABLE FOR ALL MAKES OF SPECTRUM
- FITS INTO A 6.25" BAY (E) FOR EASY INSTALLATION INTO IBM PC COMPATIBLES
- DOES NOT INCLUDE POWER SUPPLY AND CABLES
- 320K BYTE CAPACITY

NEW

P&P 5.00
NORMAL PRICE 399.00
SPECIAL PRICE 249.00

WINCHESTER 40Mb DRIVE

- HALF HEIGHT
- DOUBLE DRIVE - 720K BYTE CAPACITY
- RUNS IN POWER SUPPLY AND CABLES
- ON/OFF SWITCH
- NO EXTRAS NEEDED - JUST PLUG IN AND GO

P&P 5.00
NORMAL PRICE 499.00
SPECIAL PRICE 349.00

WINCHESTER 40Mb DRIVE

- IDEAL FOR IBM PC COMPATIBLES
- COMPLETE KIT - NO EXTRAS NEEDED
- EASY TO INSTALL
- INTERFACE CARD AND CABLES INCLUDED
- LIMITED SPECIAL OFFER

P&P 5.00
NORMAL PRICE 599.00
SPECIAL PRICE 400.00

PRICES ONLY VALID WHILE STOCKS LAST

6

MONITORS



BUILT FOR RELIABILITY



ASK FOR OUR SPECIAL PRICES ON MONITORS AND GRAPHICS CARDS FOR IBM COMPATIBLES.

ALL OF THESE MONITORS ARE SUITABLE FOR ALL MAKES OF SPECTRUM, COMODORE AND SPECTRANDED.

MONITORS TO SET YOUR SIGHTS ON

NEW PRODUCT ANNOUNCEMENTS

PHILIPS CM 8833 COLOUR MONITOR

15" CATH and RGB medium resolution colour monitor IBM PC compatible

FEATURES:

- IBM PC compatible
- incorporating 16 shade superimposing
- stereo audio
- permanent picture
- resolution: horizontal 600 x 285 lines vertical

- optional pedestal 'tilt and turn' with LCD clock
- sound with volume control
- can be used as a VGA (video)
- 16 colour

Please also tell you be able to get this monitor at this price? What price? This price does -

Special introductory price - R2025.00
Our normal price - R2500.00

Please note: This monitor is NOT the same monitor as the HGS 30 colour monitor which was advertised over the past few months. The HGS 30 monitor was not IBM PC compatible.

MONOCROME MONITOR PRICES

FREIGHT

NORMAL

SPECIAL

SAMSUNG 16" AMBER TTL SCREEN	35.00	450.00	415.00
SAMSUNG 16" AMBER COMPOSITE TTL SCREEN	.	335.00	305.00
THOMPSON 12" GREEN COMPOSITE SCREEN	.	325.00	285.00
AMDEK 12" GREEN COMPOSITE SCREEN	.	325.00	285.00

COLOUR MONITOR PRICES

SAMSUNG 16" CGA (COLOUR GRAPHICS ARRY) WITH GREEN TEXT MODE SWITCH (RGB CGA TTL)	35.00	1,625.00	1,445.00
SAMSUNG 16" DUAL SCAN COLOUR MONITOR 031 MM DOT SIZE EGA E.G.A. COMPATIBLE MONITOR	.	1,645.00	1,445.00

▶▶▶ SPECIAL OFFERS ◀◀◀ {}
ONLY WHILE STOCKS LAST

First Class Backup, Products, Prices.

A PC for business professionals

ie information enterprises

STOP PRESS!

Saving time & space



HIGH PERFORMANCE 80386 SYSTEM IN A TOWER CONFIGURATION

The system described below consists of a super high performance board compatible to the COMPAQ DECIPHER/386 computer. The system has the following key features:

- Uses 70480 enhanced Static Column RAM
- Uses an Intel® 80386 20 CPU
- 33 MHz BUS Speed and a 20 MHz CPU clock speed
- Offers considerably better performance than equivalent interpreted memory systems
- Uses the latest 80486 80386 BIOS

The system consists of the following:

- Tower case with a 220 Watt Seasoned Plus for two full height and two half height drives
- The 80386 Motherboard with 1 Megabyte of Static Column RAM
- 40MB, Adix, TEAC SD-540 HDD with AT Hard-Disk and Floppy controller
- 32MB 5.25" Floppy Drive
- AT Multi-IO card with two serial (one optional) and one parallel ports, 1 keyboard
- Monochrome graphics card with dual scan monitor and monitor
- 33 MHz 80386 test bus system
- Range of other optional items
- Full AT 16MB floppy controller
- 80486 4 parallel ports card
- Real time clock/calendar with interrupt up
- Fully featured software
- AT case system

PRICE

£10,250.00

Philips P3105
a professional PC
for business and at home

PHILIPS

• NOT ANOTHER CLONE •

With prices constantly going up - it is an extraordinary discovery to see a item that has actually come down in price. This Philips is one of the de-lux PC's on the market, and has never been all that cheap. Now the price has come down - which makes it possible for the ordinary man in the street (yes and me) to consider this PC.

FEATURES

- 768 Kbyte RAM
- 1 x 360 Kbyte 5.25" floppy drive
- 20MB 3.5" hard drive
- Real time clock
- Multi-mode video controller card
- On-board parallel printer port
- Serial printer port
- AT keyboard
- Software included:
 - MS DOS version 3.31
 - DRAGON 3.10
 - MS DOS help program
 - PC Tutor (and training program)
- real 80386 2 (bus speed 4.77 & 6 MHz processor)
- Random access memory - 840K available for MS DOS (28K available as RAM disc starting at address 0000 HEX)
- Expansion slots - 3 XT used (3x4, 3x8) expansion slots. One of which is used by the video controller card
- Monochrome VGA display, concordable line frequency to 432 kHz (7 TL) Printer (2800)



The 286 is much more than a standard personal computer. It's the core of a comprehensive computing system that allows you to take full advantage of the computer's capabilities.

The 286's ingenious built-in software suite lets you switch between any two applications even word processing and spreadsheet without loading separate software into the computer's memory. Switch from word to a letter to find an address - it's as easy as a report to carrying out a calculation - move a spreadsheet into a document - simply press a couple of keys.

The dynamic file computer is only 40% in size and weighs less than a kg. The 286 can provide over 1 kilobyte of memory, work with 80 printers and is compatible with your know-how.

The 286 gives you all the capability of a desktop unit in a package that dramatically increases its convenience.

You think that's great - you can also connect any printer up to the 286 - imagine that.

APRIL SPECIAL APRIL SPECIAL APRIL 89

286 portable computer with 80P memory & PC kit

GET YOUR HANDS

Price **£1,500.00 ON THE 286**

(Normally this would have cost you £1,825.00 and as a 875.00)

SPECIAL INTRODUCTORY PRICE - £1,025.00
OUR NORMAL PRICE - £1,250.00

Portable printer

NEW PRODUCT ANNOUNCEMENTS

HUSH PRINTER

The cheapest portable printer on the market, and in fact in the world

- The Video-tail Hush 80 is quiet, compact and very lightweight
- Ready to run on mains or battery
- Includes printer with interface, interface cable, transformer, 500H paper roll
- Battery model includes built in rechargeable nickel cadmium battery pack
- Bidirectional printing for text and unidirectional printing for graphics
- 60 cps in both AG and battery mode
- 40 cps in expanded mode
- 400 cps in condensed mode
- Graphic dot addressable 4800 dots per square inch (50 vertical by 80 horizontal)
- Economical - uses low cost thermal paper, always tear for perfect discovery tear of paper lengths - use only what you need no fiddles to run out or replace

Ideal for use with portable PCs

Expected to arrive from England within the next month

Approximate Price £750.00*

On The Spot Printing

FINETSA SP320

Desktop printers are now affordable - for that extra bit of professionalism, that is the way to go!

- Desktop
- 48 cps
- Parallel and Serial Standard
- Dumb 830 compatible
- 600 dpi/min
- Uses industry standard Doble or Xerox print wheels
- Up to 6 copies including auto A2 paper
- Auto loading of cut forms

Our Price
RRP

4 099.00
5 580.00

Freight

35.00

SEKOSON MP 53000

A real bargain for these features!

- 8 pin
- 300 cps Draft
- 60 cps ALD
- 300 column friction & tractor feed
- 840 buffer
- IBM and option compatible
- Optional cut sheet feeder

Our Price
RRP

1 999.00
2 795.00

Freight

35.00

PRINTERS FOR EVERY APPLICATION



EPSON

EPSON



FULL SPECIFICATIONS AVAILABLE ON REQUEST

AMT 8000 - 5000 24 PIN COLOUR PRINTER

This 120 column colour printer is going to be the printer of the future - it has all the features for high quality graphics and word processing - as well as the performance and adaptability of a plotter! Just look at these features!

FEATURES:

- 24 pin prethread prints up to 480 dots per inch
- Three print speeds - 60 cps letter quality 200 cps memo quality 400 cps draft quality
- Many graphics modes - produces beautiful graphics from 60 by 60 cps up to 240 by 480 cps
- Colour with off the shelf ribbon cartridges
- Set cut-sheet emulations - offers compatibility with virtually every popular software program
- Plug-in extra cards - offers easy and instant upgrades
- Numerous word processing features - supports everything from shadow to proportional printing
- User friendly control panel with select-dial - lets you control almost every aspect of the printers operation
- Flexible paper handling - accepts everything from 14lb sheets to halfpart forms and transparencies
- 17 inch wide carriage - Prints 8-size graphs
- Multi part forms printing - prints up to 8 part forms with carbon
- Built in tractor with paper park and demand document - provides easy loading, feeding and unloading of pin feed paper and forms
- Cartridges parallel and RS232C serial interfaces
- Internal diagnostics - isolates printer errors and displays plain english error messages
- Optional bottom feed tractor and sheet feeders

And you thought that only laser printers could do all this! The AMT will do it all for you for pleasure!

SPECIAL INTRODUCTORY PRICE - £4 365.00
OUR NORMAL PRICE - £4 360.00

For further details on these items - please do not hesitate to contact us - and we will supply full specification sheets.

TO ORDER CONTACT US
TELE 01 275 0000
FAX 01 275 0001

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302. 1624 11

The 70 Madison Club is offering a **LEARN** the various uses and benefits of all-ways again to learn about the benefits of "and" (continued). The Club's resources contain the best points to visit! The all-ways books for the New Year are out of the shelves.

Abstract

- | | |
|---|--------------------|
| 1. James H. Thompson's background as an FBI agent | Thompson |
| 2. The Goodman investigation | |
| 3. The "LA" line | |
| 4. The "LA" questions and how to get the story from a Los Angeles | From a Los Angeles |
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10. *Is the proposed project consistent with the applicable provisions of the CEQA Guidelines?*

- [illegible]

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100

Figure 1. The effect of the concentration of the solution on the adsorption of the dye. The concentration of the solution was 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 15.0, 20.0, 30.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0, 100.0, 150.0, 200.0, 300.0, 400.0, 500.0, 600.0, 700.0, 800.0, 900.0, 1000.0, 1500.0, 2000.0, 3000.0, 4000.0, 5000.0, 6000.0, 7000.0, 8000.0, 9000.0, 10000.0, 15000.0, 20000.0, 30000.0, 40000.0, 50000.0, 60000.0, 70000.0, 80000.0, 90000.0, 100000.0, 150000.0, 200000.0, 300000.0, 400000.0, 500000.0, 600000.0, 700000.0, 800000.0, 900000.0, 1000000.0, 1500000.0, 2000000.0, 3000000.0, 4000000.0, 5000000.0, 6000000.0, 7000000.0, 8000000.0, 9000000.0, 10000000.0, 15000000.0, 20000000.0, 30000000.0, 40000000.0, 50000000.0, 60000000.0, 70000000.0, 80000000.0, 90000000.0, 100000000.0, 150000000.0, 200000000.0, 300000000.0, 400000000.0, 500000000.0, 600000000.0, 700000000.0, 800000000.0, 900000000.0, 1000000000.0, 1500000000.0, 2000000000.0, 3000000000.0, 4000000000.0, 5000000000.0, 6000000000.0, 7000000000.0, 8000000000.0, 9000000000.0, 10000000000.0, 15000000000.0, 20000000000.0, 30000000000.0, 40000000000.0, 50000000000.0, 60000000000.0, 70000000000.0, 80000000000.0, 90000000000.0, 100000000000.0, 150000000000.0, 200000000000.0, 300000000000.0, 400000000000.0, 500000000000.0, 600000000000.0, 700000000000.0, 800000000000.0, 900000000000.0, 1000000000000.0, 1500000000000.0, 2000000000000.0, 3000000000000.0, 4000000000000.0, 5000000000000.0, 6000000000000.0, 7000000000000.0, 8000000000000.0, 9000000000000.0, 10000000000000.0, 15000000000000.0, 20000000000000.0, 30000000000000.0, 40000000000000.0, 50000000000000.0, 60000000000000.0, 70000000000000.0, 80000000000000.0, 90000000000000.0, 100000000000000.0, 150000000000000.0, 200000000000000.0, 300000000000000.0, 400000000000000.0, 500000000000000.0, 600000000000000.0, 700000000000000.0, 800000000000000.0, 900000000000000.0, 1000000000000000.0, 1500000000000000.0, 2000000000000000.0, 3000000000000000.0, 4000000000000000.0, 5000000000000000.0, 6000000000000000.0, 7000000000000000.0, 8000000000000000.0, 9000000000000000.0, 10000000000000000.0, 15000000000000000.0, 20000000000000000.0, 30000000000000000.0, 40000000000000000.0, 50000000000000000.0, 60000000000000000.0, 70000000000000000.0, 80000000000000000.0, 90000000000000000.0, 100000000000000000.0, 150000000000000000.0, 200000000000000000.0, 300000000000000000.0, 400000000000000000.0, 500000000000000000.0, 600000000000000000.0, 700000000000000000.0, 800000000000000000.0, 900000000000000000.0, 1000000000000000000.0, 1500000000000000000.0, 2000000000000000000.0, 3000000000000000000.0, 4000000000000000000.0, 5000000000000000000.0, 6000000000000000000.0, 7000000000000000000.0, 8000000000000000000.0, 9000000000000000000.0, 10000000000000000000.0, 15000000000000000000.0, 20000000000000000000.0, 30000000000000000000.0, 40000000000000000000.0, 50000000000000000000.0, 60000000000000000000.0, 70000000000000000000.0, 80000000000000000000.0, 90000000000000000000.0, 100000000000000000000.0, 150000000000000000000.0, 200000000000000000000.0, 300000000000000000000.0, 400000000000000000000.0, 500000000000000000000.0, 600000000000000000000.0, 700000000000000000000.0, 800000000000000000000.0, 900000000000000000000.0, 1000000000000000000000.0, 1500000000000000000000.0, 2000000000000000000000.0, 3000000000000000000000.0, 4000000000000000000000.0, 5000000000000000000000.0, 6000000000000000000000.0, 7000000000000000000000.0, 8000000000000000000000.0, 9000000000000000000000.0, 10000000000000000000000.0, 15000000000000000000000.0, 20000000000000000000000.0, 30000000000000000000000.0, 40000000000000000000000.0, 50000000000000000000000.0, 60000000000000000000000.0, 70000000000000000000000.0, 80000000000000000000000.0, 90000000000000000000000.0, 100000000000000000000000.0, 150000000000000000000000.0, 200000000000000000000000.0, 300000000000000000000000.0, 400000000000000000000000.0, 500000000000000000000000.0, 600000000000000000000000.0, 700000000000000000000000.0, 800000000000000000000000.0, 900000000000000000000000.0, 10000000

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Figure 1

[illegible]

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1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

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The routine returns with the carry flag set if there is overlap, and if set then the carry flag is reset. It is very similar to the previous routine.

```

ORG 40040          LD A,(HL)      point HERE
LD HL,40098        CP 255        JNZ point
LD B,(HL)          SET Z         LD B,A
INC HL             AND A         LD A,(HL)
LD B,(HL)          ADD A,B       AND B
loop INC HL        LD B,A       XOR B
LD A,(HL)          PUSH HL      CPL
ADD A,D            CALL #2554    CP (HL)
LD C,A             POP HL       JP Z,loop
INC HL             LD A,254
LD A,254           -----
BCP                or          LD HL,40098
                   LD (HL),1
                   -----
                   SET         SET

```

The choice here is important because obviously if you call the routine from BASIC, you would not know if the CARRY FLAG is set or not. With the second option you could at least PUSH into 40098 and see whether it is equal to 1 or not. It therefore seems obvious that 40098 should be set to zero before calling the routine from BASIC.

IMPORTANT - ALWAYS PUT TWO TERMINATION BYTES at the end of the effect values. Each of the two termination bytes MUST be equal to 255

I would suggest that you draw a grid and fill it in before entering the co-ords.

```

Try this :      10 FOR Q=40100 TO 40218 STEP 2
                20 READ A,B
                30 FOR Q,A - FORS Q=1,2
                40 NEXT Q
                50 DATA 0,4,0,1,2,4,2,1,4,2,4,3,5,3,4,4,2,5
                60 DATA 4,2,5,1,5,0,5,3,5,3,7,4,7,1,7,3,7,2
                70 DATA 1,5,1,2,5,3,3,2,2,2,3,3,3,2,5,3,255,255

```

RUN and it will end with a message " E I OUT OF DATA "

RANDORIDE VER 40000 will give a small example of the speed of the program. Try changing the position of the character by changing the amounts in 40098 and 40099.

COMING SOON : PROGRAMS BASED ON AND USING THE ONCE HERE.

B.B. OUT AN ASSEMBLER TO KEEP UP " " "

FINISITLY FORTH

L.Donovan.

Passal is a language that has recently been featured in the club newsletter. In this article I want to look at a language called FORTH. Most students have FORTH available for them as FORTH can run successfully on systems with as little as 16K of memory. Further FORTH is a public domain language with information on implementation freely available from the Forth Interest Group.

Forth was developed around 1968 by Charles Moore to control radio telescopes at the National Observatory in the USA. But due to the nature of the language Forth is used in applications as diverse as monitoring heat-treat in real time to running large databases. What makes Forth different from all the other high level languages that are available? The answer is not simple, but lets look at some of Forth's features.

1. Forth is progressed by extending the language! In other words Forth consists of commands (called WORDS) which are used to create new commands (WORDS). It is thus possible to create your own language that is problem-orientated. A very good example of the above mentioned property of Forth is the WHITE LIGHTNING package. This package is basically a Forth package which includes a group of "words" collectively called "the IDEA language" which is used to create arcade type games.

2. Forth uses a "stack" which is directly under user control. This necessitates the use of post fix notation (also called Reverse Polish notation and used in Hewlett Packard calculators). The basic FORTH `2 3 * .` becomes `2 3 * .` in Forth. i. e. the Forth print instruction. Similarly Basic's `PRINT (2+3)/4` becomes `2 3 + 4 / .` (this particular example could be written in various ways). `ROT` is a stack manipulation word. The above example could be visualised as follows:

3	2	4	5	4	5	ROT	3	+	3	4	2	(top of stack)
	2	3	4	3	5		5	4				
		2	4	2	5		5					
			2									

Using the stack effectively takes a while to get used to!

3. Further Forth is both an interpreter as well as a compiler. The interpreter works similar to `specify basic`, as it responds to instructions as soon as enter is pressed. Type `2 3 + .` in `FORTH` and the computer would respond with `FORTH RESPOND 5` i. e. the `FORTH` for `PRINT THE FOLLOWING TEXT`. But the above could also have been compiled by typing `2 3 + .` in `FORTH` and the computer would now respond with `2 3 + .` and the computer would respond with `FORTH RESPOND 5` as we have now compiled a word with the name `ADD`. The interpretive mode is useful for testing and debugging while the compiler is used for programs.

Programming in `FORTH` as already mentioned programming in Forth is achieved by extending the language. For example lets say we require a program that controls a bottling machine. First we create the words we require for all the actions we require. These may be `FILL`, `CORE` and `LABEL`. Lets say `CORE` consists of `1 CORE POST LOCK PUT ADD 1` we see that `CORE` contains 4 words which was defined at an earlier stage. The words `FILL`, `CORE` and `LABEL` may again be combined as one word maybe `1 BOTTLE PUT CORE LABEL 1 now "BOTTLE" which would be our whole program`

It must be noted however that the lower level instructions would have to be created first in practice.

DISADVANTAGES:

1. One of the disadvantages of `FORTH` words that are compiled i. e. by using the `;` and `!` instructions is that the source typed in on the terminal is lost, as only the compiled code remains. Therefore `FORTH` is supplied with an editor which enables one to enter the source into "screens" which may be saved to a hard storage device, these screens may then be compiled from this device.

2. As `FORTH` does not specify a standard editor the ease of use is dependent on the `FORTH` package used. `FORTH` does however specify the "screen" layout, each screen holding 1K of source programming.

3. The language further has the problem of having more than one standard "necessary" i.e. the supplied words are collectively known as `;` for instance there is a `FORTH-IV` as well as a `FOR-PC/IBM` standard. This is however not a serious problem as it is virtually a simple matter to define the necessary words.

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1. Interactivity. FORTH can be used to create "new languages" in which FORTH can be used as a compiler, and even as a "new language" for the new languages. One can, for instance, create a new language, say, NEW, which has the same syntax as FORTH, but which uses the FORTH interpreter to execute the programs. This is a simple way to create a new language, and it is a very useful technique. The new languages can be used to create new languages, and so on, and so on. This is a very powerful technique, and it is a very useful technique. The new languages can be used to create new languages, and so on, and so on. This is a very powerful technique, and it is a very useful technique.

By the FORTH is a compiled language the more increase in resolution is achieved. FORTH compiled code executes as to IBM as fast as standard BASIC. But by using the interpretive mode FORTH is achieved more to speed.

2. There is also the satisfaction of learning a new language. The initiation of PERTH is only the initiation of Your personal life.

If this article is an incentive to try FORTH, worthwhile further
reading may be:
STARTING FORTH by Les Bradley
Teaching FORTH " " "
CONQUERING FORTH by Three People
FORTH Handbook, 2 by McClell

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